

IN THE CLAIMS:

Claims 1-89 (canceled)

- 90 (new). A method, comprising:
- a) providing:
 - i) target nucleic acid comprising first and second non-contiguous single-stranded regions separated by a secondary structure;
 - ii) a first oligonucleotide that hybridizes across said secondary structure;
 - iii) a second oligonucleotide capable of binding to a portion of said first non-contiguous single-stranded region; and
 - iv) a 5' nuclease;
 - b) mixing said target nucleic acid, said first oligonucleotide, said second oligonucleotide, and said 5' nuclease under conditions such that a cleavage structure is formed and either said first oligonucleotide or said second oligonucleotide is cleaved.
- 91 (new). The method of Claim 90, wherein said secondary structure comprises a hairpin loop region.
- 92 (new). The method of Claim 90, wherein said secondary structure comprises a bend region.
- 93 (new). The method of Claim 90, wherein said secondary structure comprises a bulge region.
- 94 (new). The method of Claim 90, wherein said secondary structure comprises a stem-loop region.
- 95 (new). The method of Claim 90, wherein said 5' nuclease is thermostable.

- 96 (new). The method of Claim 90, wherein said target nucleic acid is DNA.
- 97 (new). The method of Claim 96, wherein said DNA is viral DNA.
- 98 (new). The method of Claim 90, wherein said target nucleic acid is RNA.
- 99 (new). The method of Claim 98, wherein said RNA is viral RNA.
- 100 (new). The method of Claim 90, further comprising:
c) detecting the cleavage of said cleavage structure.
- 101 (new). The method of Claim 100, wherein said detecting the cleavage of said cleavage structure comprises detection of fluorescence energy transfer.
- 102 (new). The method of claim 100, wherein said detecting the cleavage of said cleavage structure comprises detection selected from the group consisting of detection of radioactivity, luminescence, phosphorescence, fluorescence polarization, and charge.
- 103 (new). The method of Claim 90, wherein said first oligonucleotide is attached to a solid support.
- 104 (new). The method of Claim 90, wherein said second oligonucleotide is attached to a solid support.
- 105 (new). A method, comprising:
a) providing:
i) target nucleic acid comprising first and second non-contiguous single-stranded regions separated by a secondary structure;
ii) a first oligonucleotide that hybridizes across said secondary

structure, wherein said first oligonucleotide comprises a region complementary to said first non-contiguous single-stranded region of said target nucleic acid;

iii) a second oligonucleotide capable of binding to a portion of said second non-contiguous single-stranded region, wherein said second oligonucleotide comprises a 3' portion and a 5' portion, wherein said 5' portion comprises a region complementary to said second non-contiguous single-stranded region of said target nucleic acid; and

iv) a 5' nuclease;

b) mixing said target nucleic acid, said first oligonucleotide, said second oligonucleotide, and said 5' nuclease under conditions such that said first oligonucleotide hybridizes with said first non-contiguous single-stranded region of said target nucleic acid and such that said 5' portion of said second oligonucleotide hybridizes with said second non-contiguous single-stranded region of said target nucleic acid so as to form a cleavage structure, wherein said 5' nuclease cleaves said cleavage structure.

106 (new). The method of Claim 105, wherein said cleaving of said cleavage structure comprises cleavage of said first oligonucleotide.

107 (new). The method of Claim 105, wherein said cleaving of said cleavage structure comprises cleavage of said second oligonucleotide.

108 (new). The method of Claim 105, wherein said secondary structure comprises a hairpin loop region.

109 (new). The method of Claim 105, wherein said secondary structure comprises a bend region.

110 (new). The method of Claim 105, wherein said secondary structure comprises a bulge region.

- 111 (new). The method of Claim 105, wherein said secondary structure comprises a stem-loop region.
- 112 (new). The method of Claim 105, wherein said 5' nuclease is thermostable.
- 113 (new). The method of Claim 105, wherein said target nucleic acid is DNA.
- 114 (new). The method of Claim 113, wherein said DNA is viral DNA.
- 115 (new). The method of Claim 105, wherein said target nucleic acid is RNA.
- 116 (new). The method of Claim 115, wherein said RNA is viral RNA.
- 117 (new). The method of Claim 105, further comprising:
c) detecting the cleavage of said cleavage structure.
- 118 (new). The method of Claim 117, wherein said detecting the cleavage of said cleavage structure comprises detection of fluorescence energy transfer.
- 119 (new). The method of claim 117, wherein said detecting the cleavage of said cleavage structure comprises detection selected from the group consisting of detection of radioactivity, luminescence, phosphorescence, fluorescence polarization, and charge.
- 120 (new). The method of Claim 105, wherein said first oligonucleotide is attached to a solid support.
- 121 (new). The method of Claim 105, wherein said second oligonucleotide is attached to a solid support.